

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-8 (canceled).

Claim 9 (previously presented): A method according to claim 8, wherein of operating a packet switch which comprises a plurality of ingress means, a plurality of egress means, a cross-bar and a controller, the cross-bar being connected between the ingress means and the egress means to transfer multicast and unicast data traffic from the ingress means to the egress means, the method comprising the steps of:-

- a) determining if the data traffic to be transferred is unicast or multicast;
- b) if the data traffic is unicast, invoking a unicast schedule;
- c) if the traffic is multicast, invoking a multicast schedule; and
- d) transferring the data traffic in accordance with the invoked schedule; wherein,

step c) comprises forming a multicast cell fanout table containing current fanout requirements for a cell at the head of a multicast queue in each ingress

means, setting eligible bits for multicast cells which are currently allowed to be scheduled, and determining a priority for each ingress means for sending the cells;

the step of determining the priority for each ingress means is based on a combination of send opportunities of the ingress means;

the method further comprises a step of e) filling a blank multicast schedule in accordance with the priority assigned to each ingress means;

step e) comprises (i) filling the blank schedule with the full fanout of the first priority ingress means, and (ii) filling in as much of the fanout of the next priority ingress means and subsequent ingress means as possible to complete the schedule; and

step (ii) comprises selecting fanouts of ingress means in accordance with multicast egress credit allocated to each egress means.

Claim 10 (canceled).

Claim 11 (previously presented): A method of operating a packet switch which comprises a plurality of ingress means, a plurality of egress means, a cross-bar and a controller, the cross-bar being connected between the ingress means and the egress means to transfer multicast and unicast data traffic from the ingress means to the egress means, the method comprising the steps of:-

- a) determining if the data traffic to be transferred is unicast or multicast;
- b) if the data traffic is unicast, invoking a unicast schedule;
- c) if the traffic is multicast, invoking a multicast schedule; and
- d) transferring the data traffic in accordance with the invoked schedule; wherein,

step c) comprises forming a multicast cell fanout table containing current fanout requirements for a cell at the head of a multicast queue in each ingress means, and setting eligible bits for multicast cells which are currently allowed to be scheduled;

each ingress means has a rate associated with multicast traffic, said rate being represented as a send opportunity every fixed number of cell periods, the send opportunities of the plurality of ingress means being combined into a multicast schedule by placing a send opportunity on the next free cell cycle unless it would overlap with the next send opportunity for the same ingress means; and in the case of a potential such overlap, stacking multiple send opportunities in a single cell cycle; and

a priority is determined for each ingress means associated with the stacked send priorities, based on the combination of send opportunities in the multicast schedule.

Claim 12 (previously presented): A method according to claim 11, further comprising the step of e) filling a blank multicast schedule in accordance with the priority assigned to each ingress means.

Claim 13 (previously presented): A method according to claim 12, wherein step e) comprises the step of:-

(i) filling the blank schedule with the full fanout of the first priority ingress means.

Claim 14 (previously presented): A method according to claim 13, wherein step e) further comprises the step of:-

(ii) filling in as much of the fanout of the next priority ingress means and subsequent ingress means as possible to complete the schedule.

Claim 15 (previously presented): A method according to claim 14, wherein step (ii) comprises selecting fanouts of ingress means in accordance with multicast egress credit allocated to each egress means.

Claim 16 (new): A method of operating a packet switch comprising a plurality of ingress means, a plurality of egress means, a cross-bar and a

controller, the cross-bar being connected between the ingress means and the egress means to transfer multicast and unicast data traffic from the ingress means to the egress means, the method comprising:

- A) for each ingress means, determining whether data traffic to be transferred is unicast or multicast;
- B) if the data traffic is unicast, invoking a unicast schedule;
- C) if the traffic is multicast, invoking a multicast schedule; and
- D) transferring the data traffic in accordance with an invoked schedule;

wherein step C) further comprises,

- (i) for each ingress means having a multicast cell for transmission to a respective fanout of egress means, assigning a multicast rate, indicated by a periodic multicast send opportunity spaced apart by a number of cell periods, said number being determined in accordance with the allocated multicast rate;
- (ii) combining the multicast send opportunities allocated to the ingress means into a multicast schedule, said multicast schedule being prepared by the following steps,

(a) for each ingress means, scheduling each allocated multicast send opportunity in a next free cell period unless it would then overlap with the next indicated allocated multicast send opportunity for the same ingress means;

(b) where two or more ingress means each have an indicated multicast send opportunity in any one cell period, scheduling multicast send opportunities according to an allocated priority of each ingress means, wherein the allocated priority is calculated as follows, for each cell period,

1. if an ingress means has an indicated periodic multicast send opportunity in a particular cell period, and if delaying that ingress multicast send opportunity by one cell period would result in overlap with the next indicated multicast send opportunity for the same ingress means, allocating that ingress means a high priority;

2. allocating a lower priority to other ingress means having an indicated multicast send opportunity in the particular cell period;

3. allocating an even lower priority to other eligible ingress means having a multicast cell to transmit;

(c) scheduling transmission of an entire fan-out of the multicast cell of any ingress means with high priority during the particular cell period, and scheduling transmission of at least part of a fan-out of a multicast cell of a second ingress means of lower or even lower priority, to egress means which are not included within a fan-out of the high-priority ingress means;

(d) scheduling as large a portion as possible of a fan-out of multicast cells of further ingress means; and

(e) maintaining eligibility of any remaining portion of the multicast fanout of the second and further multicast cells for the following cell period.

Claim 17 (new): A method according to claim 16, wherein an eligibility bit is provided for each ingress means, the eligibility bit being set to indicate ingress means having multicast cells which are currently allowed to be scheduled.

Claim 18 (new): A method according to claim 17, wherein the eligibility bit for a particular ingress means is reset once the entire multicast fanout has been scheduled for the particular ingress means, and the eligibility bit is set when a next indicated multicast send opportunity occurs for that ingress means.

Claim 19 (new): A method according to claim 16, wherein step C(ii) comprises forming a multicast cell fanout table containing current fanout requirements for multicast cells at the head of a multicast queue in each respective ingress means.

Claim 20 (new): A method according to claim 19, wherein:
a multicast egress credit is allocated to each egress means; and
steps (C)(ii)(c) and (d) comprise selecting fanouts of ingress means in accordance with the multicast egress credit allocated to each egress means.

Claim 21 (new): A method according to claim 16, further comprising the step of scheduling one or more unicast transmissions in a cell period, between ingress and egress ports not scheduled for multicast transmission during the cell period.

Claim 22 (new): A method according to claim 16, wherein, if no multicast cell send opportunity is scheduled for a given cell period, invoking a unicast schedule for that cell period.